May 18, 1978

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Dockets Nos.: 50-269
50-270
and 50-287

Duke Power Company
ATTN: Mr. William O. Parker, Jr.
Vice President - Steam
Production
P. O. Box 2178
422 South Church Street
Charlotte, North Carolina 28242

Gentlemen:

We are currently reviewing your submittal of February 1, 1978 in regard to a conceptual design of a safe shutdown system for Oconee Units Nos. 1, 2, and 3. We find that we need additional information so that we can continue our review of this proposal.

It is requested that you provide the information identified in the enclosure to enable us to complete our review of the conceptual design. Responses to questions numbered 1, 2, 3, and 4 are needed by June 19, 1978, in order for us to complete our fire protection program review. Kindly submit three signed originals and 37 additional copies.

Sincerely,

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosure:
Request for Additional
Information

cc w/enclosure: See next page

*SEE PREVIOUS YELLOW FOR CONCURRENCE

| OFFICE | ORB#4:DOR | C-EB:DOR | C-PSB:DOR | C-RSB:DOR | C-ORB#4:DOR | |
|---|---|---|---|---|---|---|
| SURNAME | MFairtile:rm | LShao* | WButler | RBaer | RReid | |
| DATE | 5/ /78 | 5/ /78 | 5/ /78 | 5/ /78 | 5/ /78 | |

Duke Power Company

cc: Mr. William L. Porter
Duke Power Company
P. O. Box 2178
422 South Church Street
Charlotte, North Carolina 28242

J. Michael McGarry, III, Esquire
DeBevoise & Liberman
700 Shoreham Building
806-15th Street, NW.,
Washington, D.C. 20005

Oconee Public Library
201 South Spring Street
Walhalla, South Carolina 29691

OCONEE NUCLEAR STATION

REQUEST FOR ADDITIONAL INFORMATION

1. Describe the fixed manual fire suppression system to be provided in each cable spreading room and each equipment room.

2. Repair procedures should be developed for restoring power to equipment required to achieve and maintain cold shutdown where redundant cold shutdown cabling are routed in proximity to each other and may be lost in a fire. Material needed for repairs should be available on site such that repairs can be made and cold shutdown achieved within 72 hours of the initiation of hot shutdown. Provide your plans to meet these criteria.

3. Interim procedures should be developed for the period until the dedicated safe shutdown system becomes operational to assure safe shutdown can be achieved. In addition to the plans developed for item 2 above, interim procedures should be developed for restoring power to equipment required for hot shut down where redundant cables for this equipment are routed in proximity to each other and may be lost in a fire. Material needed for repairs should be available on site. Provide your plans and schedule to meet these needs.

4. Provide the design criteria for the electrical and instrumentation and control aspects of the dedicated safe shutdown system. The functional part of the design need not meet the single failure criterion. However, the design should meet the single failure criterion with respect to those failures or inadvertent operations that can cause accidents or transients.

5. Identify any components of the system you plan to design at less than ASME Section III Class 2 requirements and provide the basis. Identify any components you design to meet Class 3 Inservice Inspection Requirements of ASME Section XI and provide the basis. We will accept Class 2 Section XI component design without any submitted bases.

6. Some equipment appears to be below grade. Provide the design features needed to prevent flooding. Provide the maximum limiting flood elevation at the structure location.

7. Identify the sections of the Standard Review Plan, NUREG 75/087, you plan to apply to the design of the safe shutdown system.

8. In Section 2.2 of the submittal, you state that a means of adding negative reactivity will be provided. Other than the concentration of boron included in the source (spent fuel pool), what provisions for boron addition or dilution will be provided? Discuss the condition of a cold water accident from the insertion of the cooler spent fuel pool water and any resultant increase in reactivity.

9. In Figure 2-3-1 the makeup water from the spent fuel pool passes through a motor operated valve and then through the emergency makeup pump prior to any filtration or screening. Discuss the considerations given to eliminate seizure of these components from particulate matter in the spent fuel pool makeup water.

10. Describe how the flow rate be controlled in the RCS Emergency Makeup System. In Section 2.4 of the submittal, you state that slow rate of the shrinkage volume will eliminate the need to letdown from the RCS while maintaining hot shutdown. However, you also state that a means of controlling letdown is provided by a new motor operated valve in each reactor building. Your submittal has not addressed letdown and charging control of the RCS or the possibility of a solid system during the postulated event. Provide this information in conjunction with your complete flow loop design and analysis.

11. In Section 2.5 of your submittal, you state that a means of testing the pump and valves under hot shutdown conditions will be provided. Describe these means and provide flow diagrams and descriptions of any test loops and valving you are considering in your design. Discuss any requirements needed to eliminate water hammer affects and thermal shock.

12. Describe the capability for handling (storing or removing) the out-leakage from the RCP seals during the time that the emergency Safe Shutdown System is in operation.

13. Provide a summary of the NPSH calculations for all pumps used in the proposed safe shutdown facility.

14. Provide detailed calculations for the natural circulation flows predicted for Oconee shown plotted on Figure 1.2-1 as minimum required flow and maximum and minimum expected flow. These calculations should include a sensitivity study showing the effects that the feed water flow and the water level of the steam generator have on natural circulation of the RCS. Figure 1.2-1 of the submittal indicates a fairly large difference between the measured flow value and the corresponding value predicted for maximum flow (~33%). Even though this discrepancy appears to be on the conservative side, what factors are there which could contribute to such a difference? This type of information should be included in the above requested sensitivity study.

15. Describe the expected system behavior after the pressurizer cools and the reactor coolant system is at saturated conditions.

    (i) Provide the expected values of pressure, temperature, quality and void fraction at various locations within the reactor coolant system during this period of time, and also the shell side conditions of the steam generator.

    (ii) Could steam bubbles form within the reactor coolant system which could interfere with natural circulation?